OIPE
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Oblon, Spivak, et al.
703-413-3000

FIG. 1

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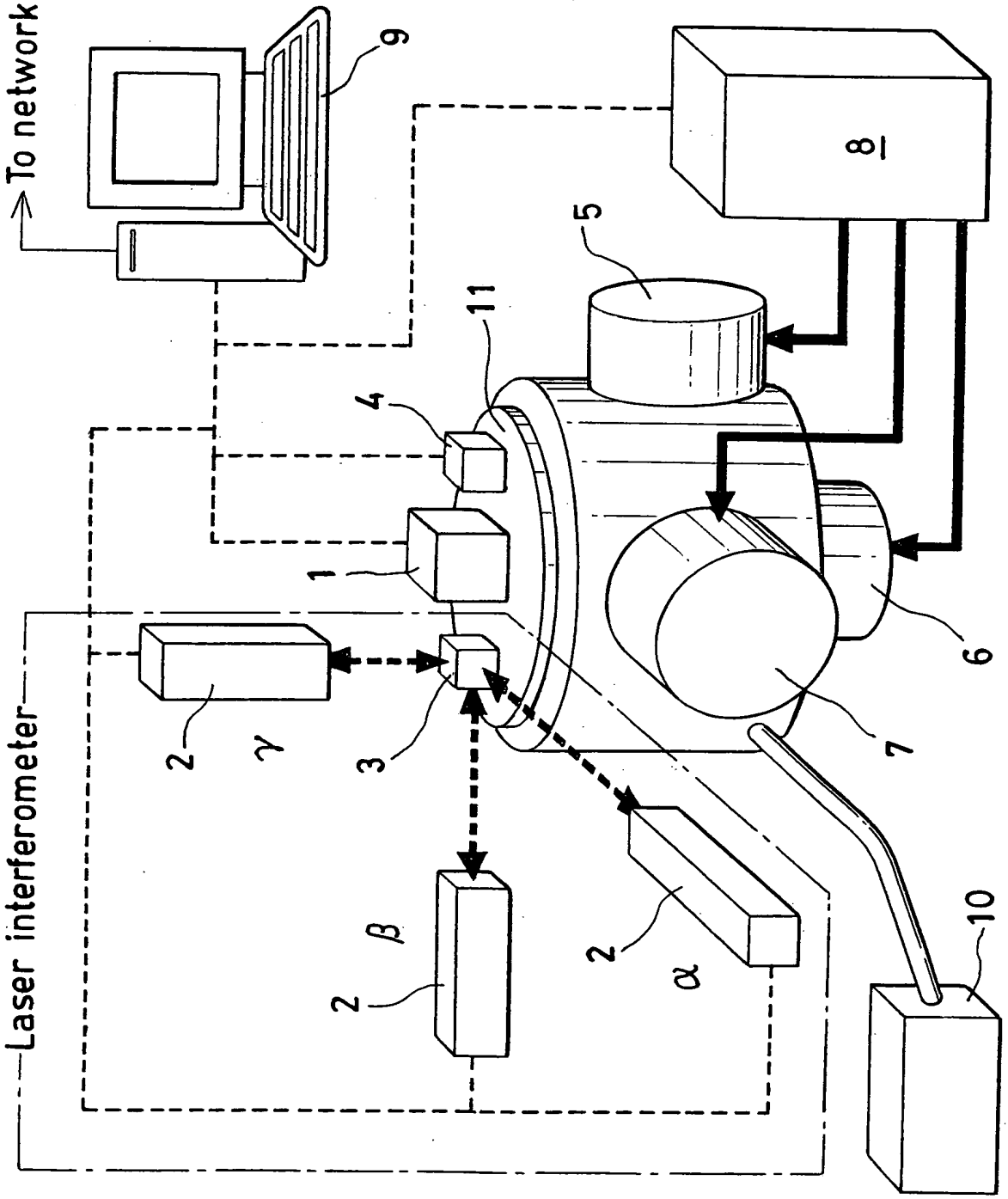


FIG. 2

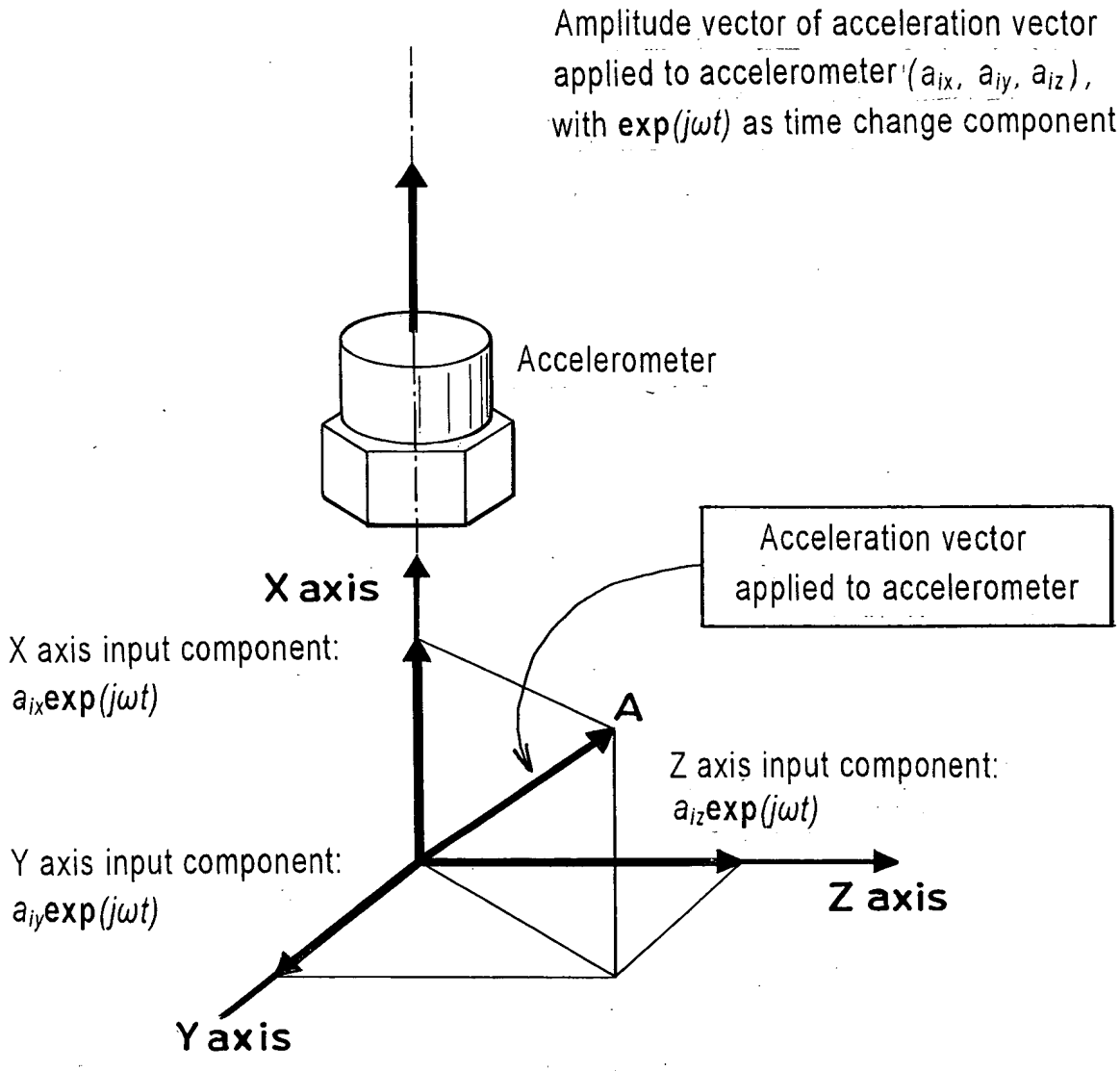

Amplitude vector of acceleration vector applied to accelerometer (a_{ix}, a_{iy}, a_{iz}), with **exp**$(j\omega t)$ as time change component
Accelerometer
Acceleration vector applied to accelerometer
X axis
X axis input component:
a_{ix}**exp**$(j\omega t)$
A
Z axis input component:
a_{iz}**exp**$(j\omega t)$
Y axis input component:
a_{iy}**exp**$(j\omega t)$
Z axis
Y axis

FIG. 3

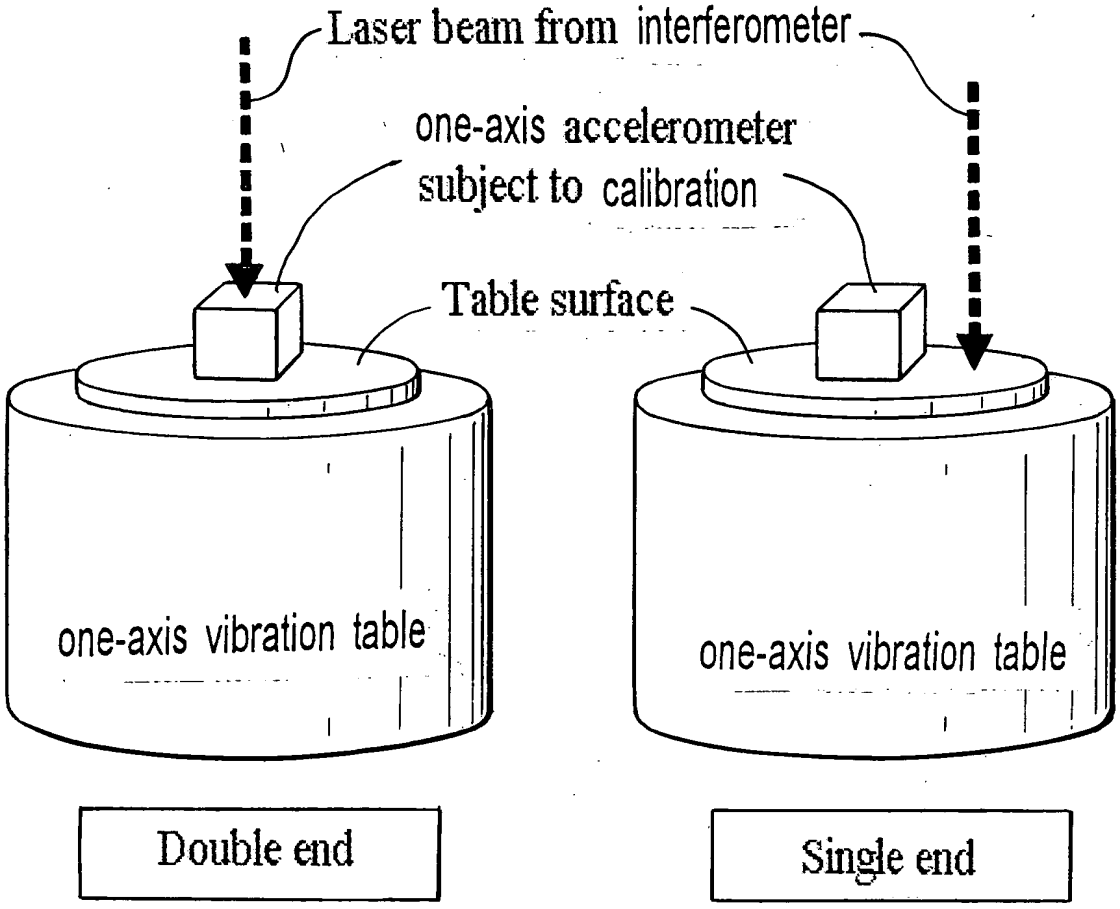
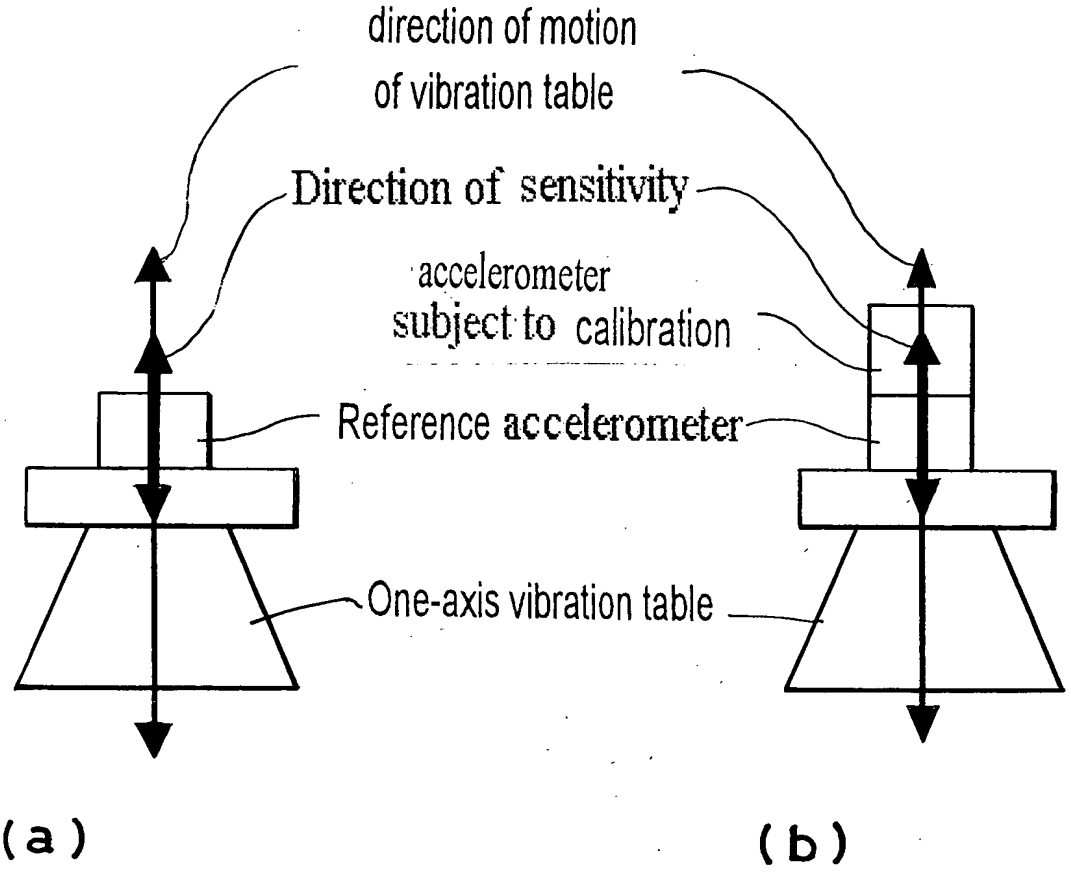

Laser beam from interferometer
one-axis accelerometer subject to calibration
Table surface
one-axis vibration table
one-axis vibration table
Double end
Single end

FIG. 4


direction of motion
of vibration table
Direction of sensitivity
accelerometer
subject to calibration
Reference accelerometer
One-axis vibration table
(a)
(b)

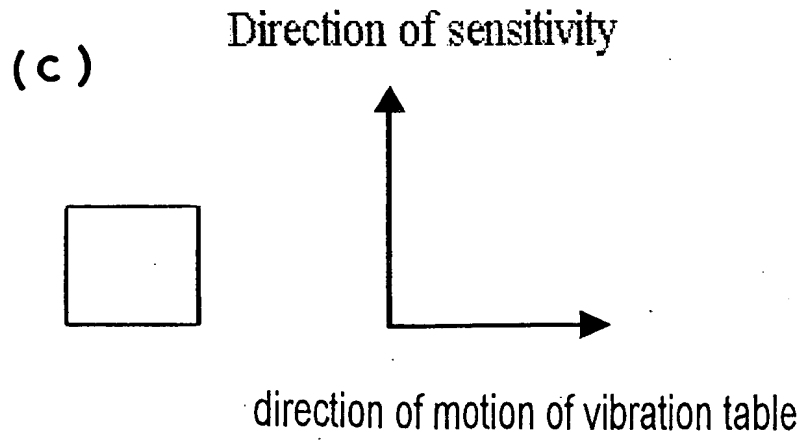
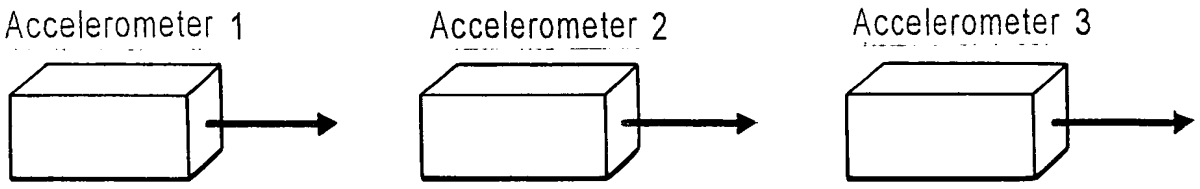
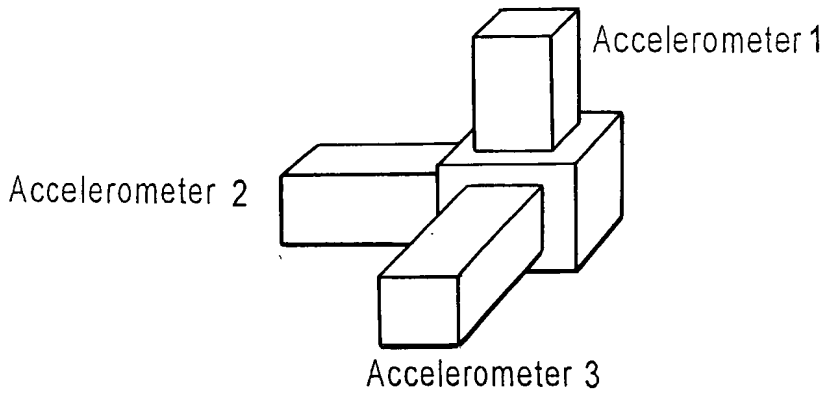

(c)
Direction of sensitivity
direction of motion of vibration table

FIG. 5



Accelerometer	Angle with gravitational acceleration	Matrix sensitivity
Accelerometer 1	Vertical	$(S_{x,x,90.1}, S_{x,y,90.1}, S_{x,z,90.1})$
	Horizontal	$(S_{x,x,0.1}, S_{x,y,0.1}, S_{x,z,0.1})$
Accelerometer 2	Vertical	$(S_{x,x,90.2}, S_{x,y,90.2}, S_{x,z,90.2})$
	Horizontal	$(S_{x,x,0.2}, S_{x,y,0.2}, S_{x,z,0.2})$
Accelerometer 3	Vertical	$(S_{x,x,90.3}, S_{x,y,90.3}, S_{x,z,90.3})$
	Horizontal	$(S_{x,x,0.3}, S_{x,y,0.3}, S_{x,z,0.3})$

This accelerometer when assembled, manifests the following matrix sensitivity.



The matrix sensitivities of the assembled accelerometers shown above are as follows:

$$\begin{pmatrix} S_{x,x,90.1} & S_{x,y,90.1} & S_{x,z,90.1} \\ S_{x,x,0.2} & S_{x,y,0.2} & S_{x,z,0.2} \\ S_{x,x,0.3} & S_{x,y,0.3} & S_{x,z,0.3} \end{pmatrix}$$

FIG. 6

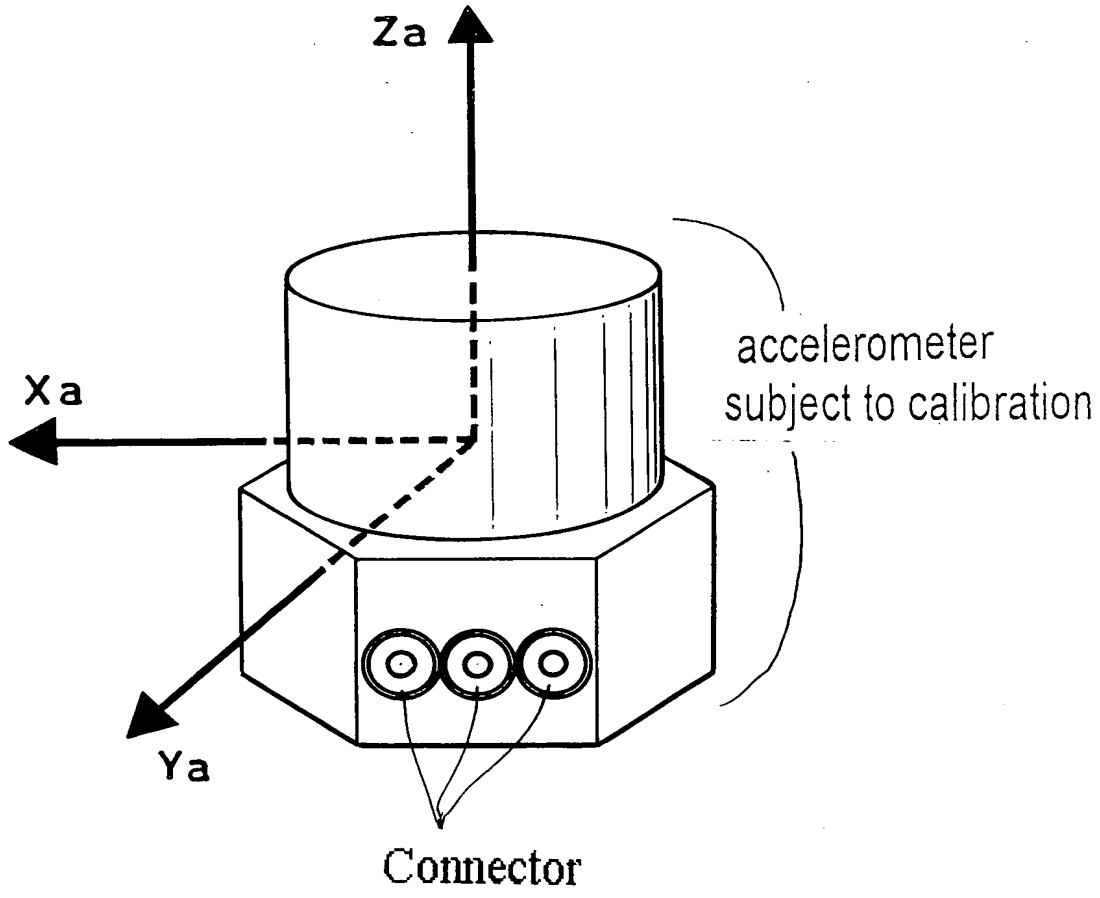


FIG. 7

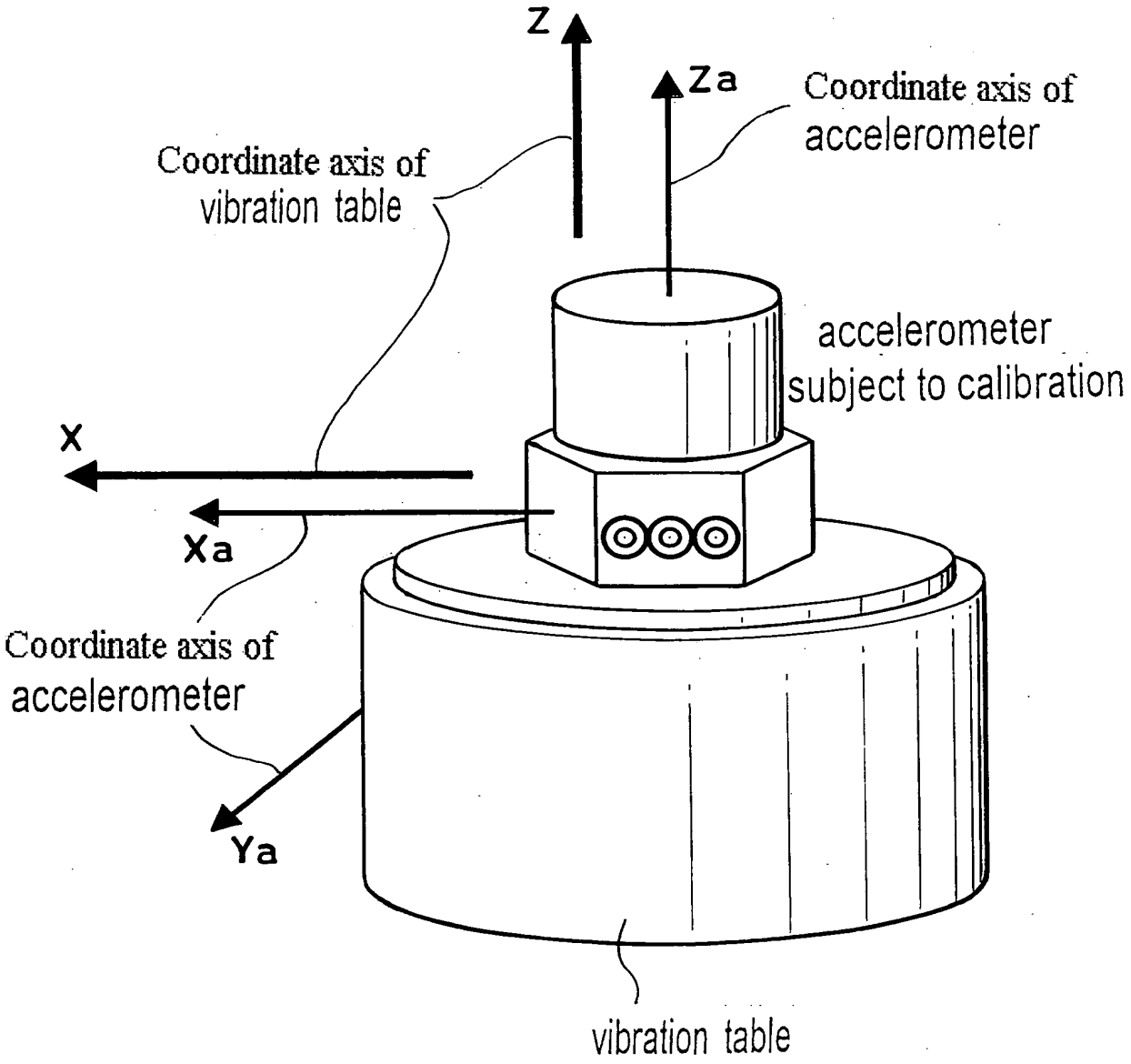

Z
Za
Coordinate axis of accelerometer
Coordinate axis of vibration table
accelerometer subject to calibration
X
Xa
Coordinate axis of accelerometer
Ya
vibration table

FIG. 8

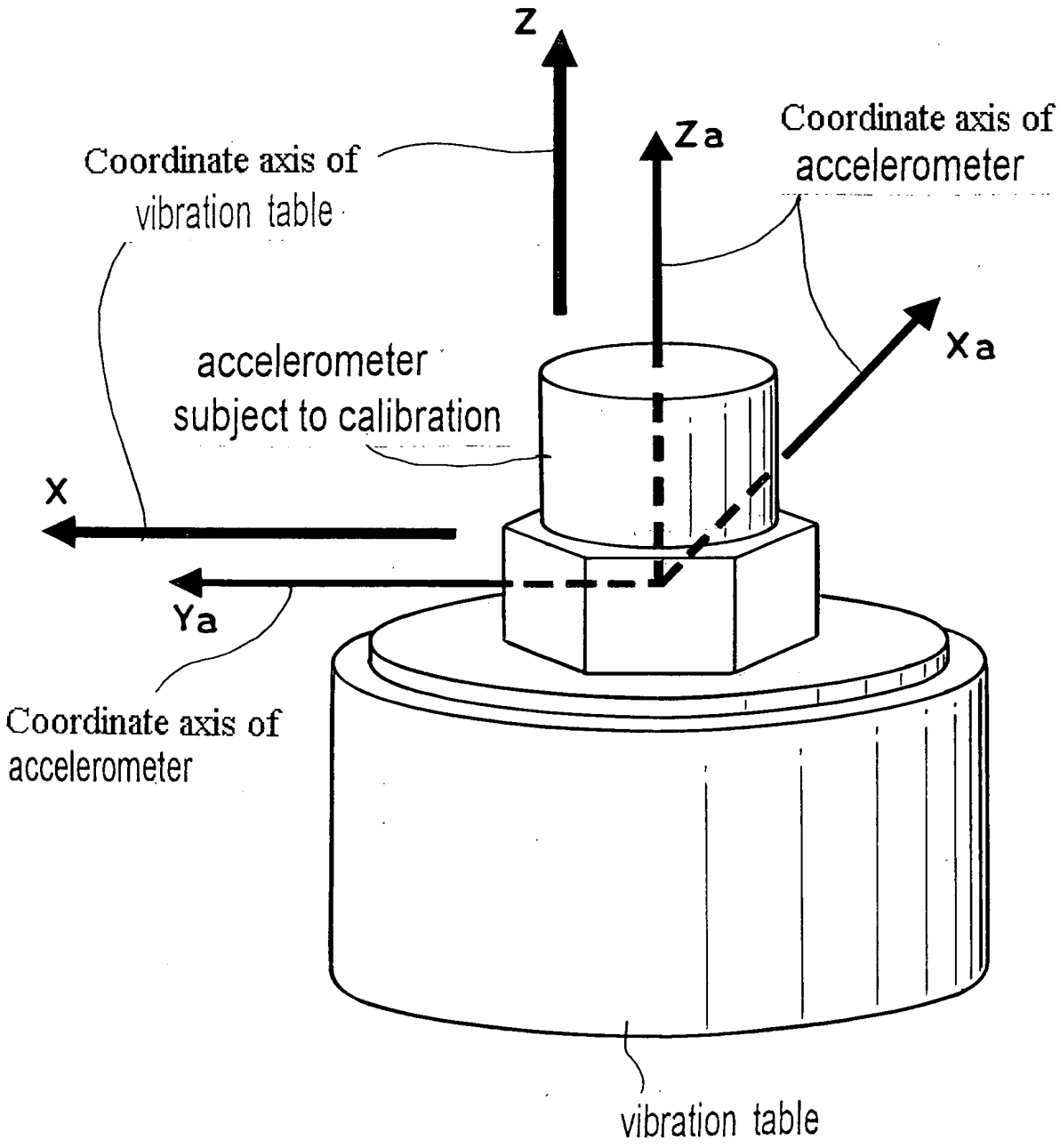
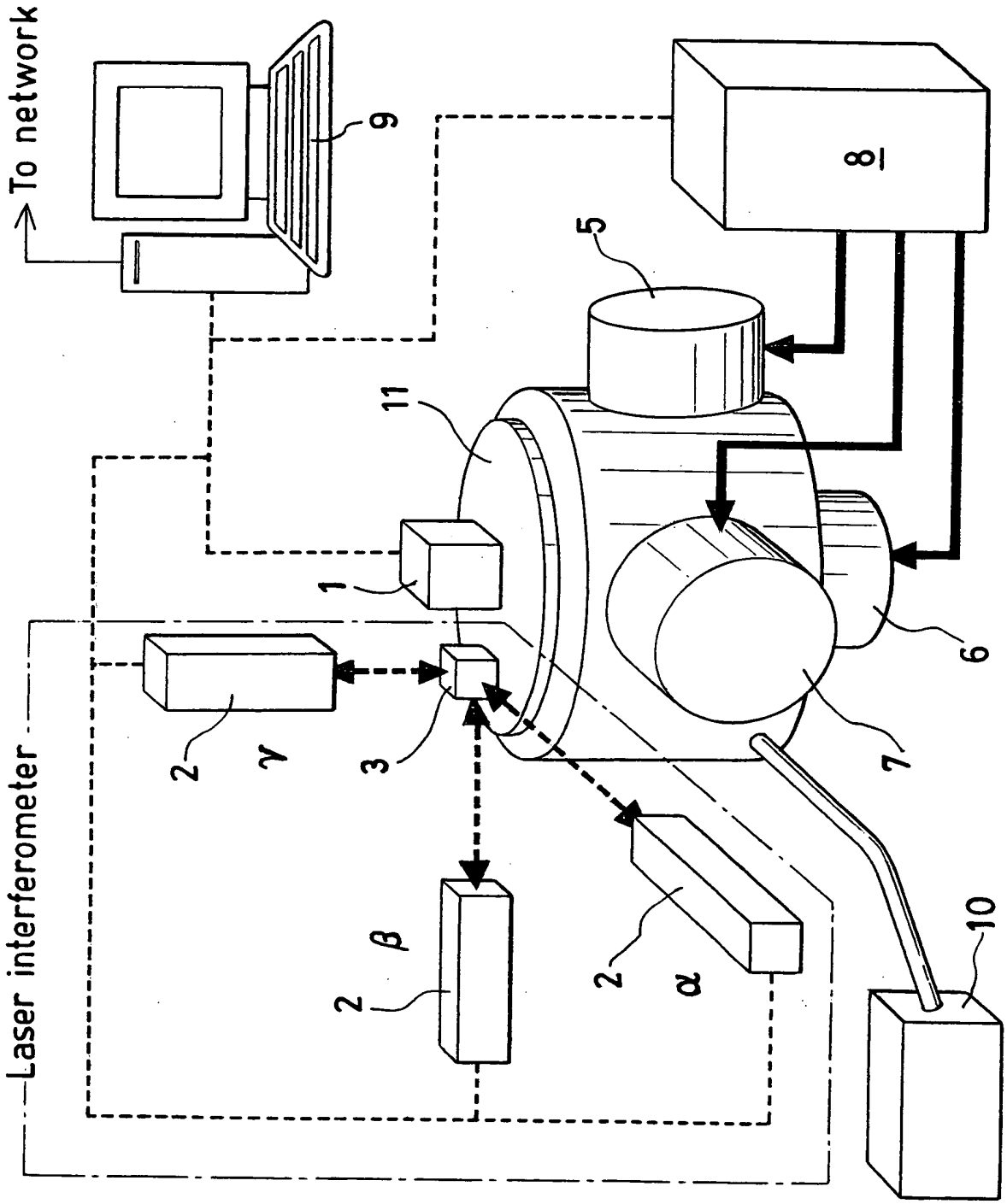

Z
Za
Coordinate axis of vibration table
Coordinate axis of accelerometer
accelerometer subject to calibration
Xa
X
Ya
Coordinate axis of accelerometer
vibration table

FIG. 9



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